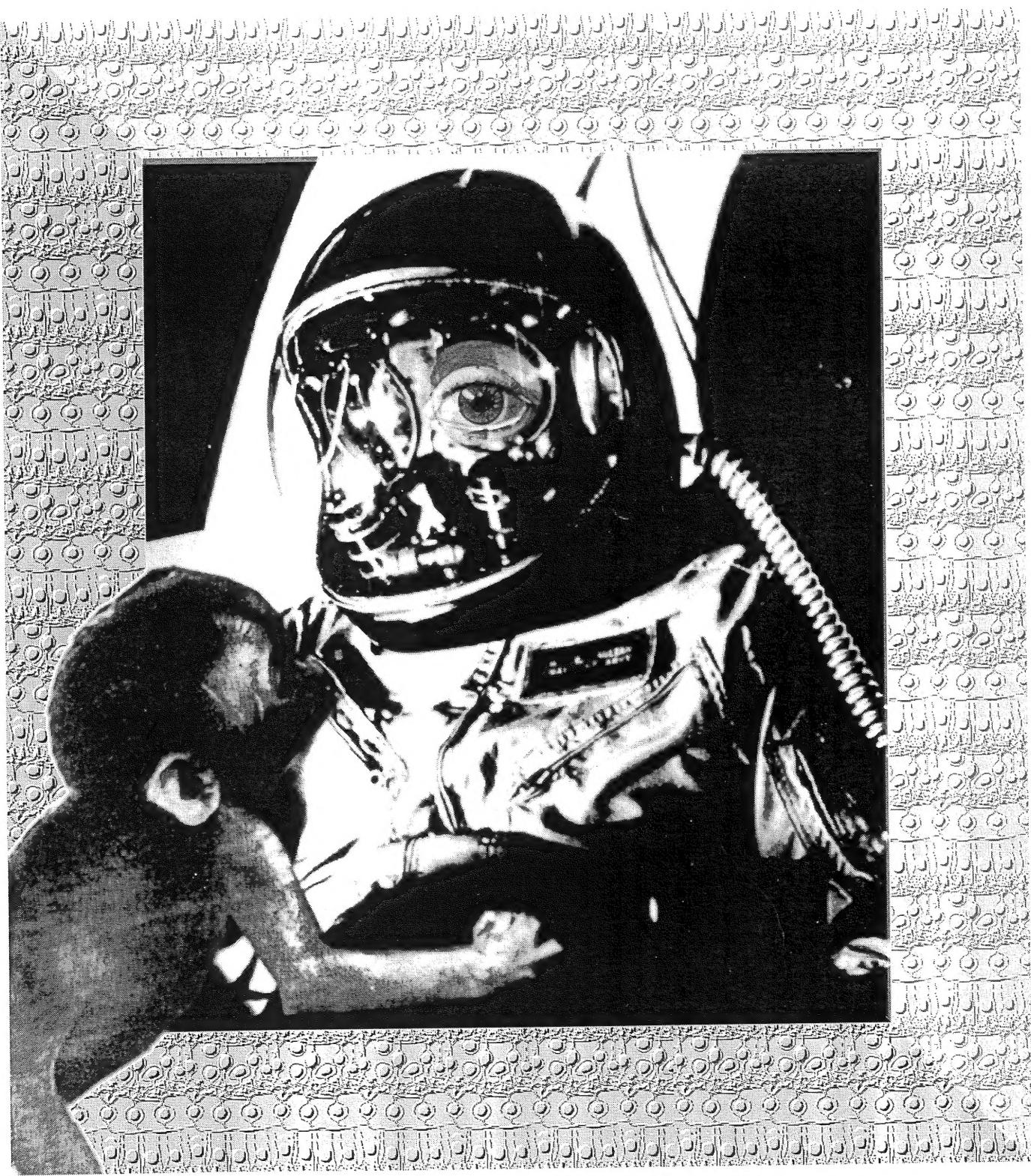


Artists Using Science and Technology

Ylem (Eye-lum): The exploding mass out of which the universe emerged in the Big Bang

Ylem Newsletter
Vol.12, No. 4 April 1992



Computer poster design for Convergence Interactive Art Festival by Adrian Fernandez of Design T. (See article on festival, page 2)

Of Squeeks, Geishas and Shadow Puppets

by P.M. Zimmerman

Ken Rinaldo was hopping around when I arrived at his home-grown gallery last Saturday. Photographer Tom Graves had created a huge black velvet background, and dangling in front of this frightening new environment, Rinaldo's *Cyber-squeeks* bounced timidly on their coiled wire leashes. Kenny crooned anxiously as Graves adjusted his mega-equipment. "How about the fur side?" Tom nodded, and Rinaldo pounced forward to rotate one of his creatures. The touch of Rinaldo's hand tipped the Squeek's mercury switch. It howled and burped electronically as it slowly turned its cylindrical, fur-lined orifice to the camera.

Born in a San Francisco State University studio less than two years ago, the electro-organic Squeeks are Rinaldo's most rapidly evolving species of interactive artwork. Though these creatures once only squeaked, now they chatter and bellow; their melted pupa plaster skeletons have sprouted everything from coffee pots and toasters to spring-motored egg beaters. Brightly colored wires spread over organic and metallic forms alike, connecting circuit boards to sensors to simple switches. These objets d'art parody the technology they have appropriated while enticing the viewer to touch them.

"I realized that the greatest joy that I got out of making art was in the production," says Rinaldo, "I began to ask myself why I should have all the fun and just provide someone with some after-effect of the fun, which they would then try to abstractly understand and try to climb into. So I tried to create work which would look to the participant/viewer for completion and in so doing allow the participant to understand the creative process itself."

After a flurry of Squeeks, last year Rinaldo began drafting plans for a smarter cyber-sculpture—*The Flock*, a group of arm-like, five-foot grapevine creations that when finished will interact with humans, and hopefully, with each other. *The Flock's* cilia-like "arms" will detect participants' positions in the room, their tones of voice and the rapidity of their movements. This

information will be relayed to a hard drive tucked into the "arm's" shoulder, where it will be processed and re-issued in the form of movement towards or away from the participant and the other "arms."

Rinaldo, a former computer consultant, Santa Barbara communications major and one-time New York ballet dancer, is no hardware engineer. Soon after designing *The Flock* his theretofore intermittent collaboration with Silicon Graphics engineers Mark Grossman and Joe Kennedy developed rapidly. Over the next nine months Kennedy designed *The Flock's* Mac-like processor, Grossman built and programmed it and Rinaldo designed the sensors that will guide and inform the arms.

Unlike the "creatures" perpetually rearing their ugly crania in sci-fi movies, Rinaldo and Grossman's *Flock* is not a prop in a film. "While something only has to work once for a movie, a cybernetic art piece has to last forever," says Rinaldo. "Because of all its variables—resistance, space, tension—the real, physical world is infinitely more complex than the virtual world within a computer or a video screen. We're dealing with a real-time environment and real-time participants." It will have to be sturdy to endure the probing of visitors at the *Images du Future* show in Montréal all summer.

Across the Bay, interactive computer artist Beverly Reiser is also preparing for the *Images du Future* show, as well as SIGGRAPH '92 in Chicago and the Convergence Interactive Art Festival curated by Rinaldo and Amy Youngs at the Shapiro-Jameson Gallery this June. As a fellow techno-artist and as president of the hyper-creative Ylem, Reiser easily describes the trials of artists using the technology. "Market forces drive the development of new technology. Then the artist comes along and wonders, 'what can I do with this that expresses my take on what it means to be human?'. So then you start floundering around with whatever you can get your hands on."

Ten years and countless software programs later, *Life on A Slice* dances out from a huge video screen in heavenly hues of red and blue. With a video camera trained on them, participants become magicians, reaching into the air to trigger the screen icons which most entice them. The ensuing journey of *The Geisha Snail and the Phosphorescent Samurai* begins and ends as a poem accompanied by the "waking dream" music of composer Bill Fleming.

Each choice of an icon adds a line to the poem, which can culminate eight different ways according to the participant's preferences. Following the *Samurai* brings the participant on a neon-like trip through today's computerized reality by satirizing our confusion with computers and parodying our need to "re-boot" or find "passwords to access" and other technobabble. Travel with the Geisha leads to more poetic metaphors reminiscent of folk tales. "This guy called me up on the phone other day for a TV show on virtual reality," laughs Reiser. "He asked me whether my work was truly virtual reality. I told him I dealt in metaphorical reality."

Interactive computer artist Sonya Rapoport employs both metaphorical illustrations and direct questions to the viewer to probe intensely personal subjects such as sexual jealousy. In *Jealousy: the Shadow of Love*, participants investigate the sources of their jealousy, the reasons they chose their mate in the first place and their methods of coping with their feelings of loss. "However you are jealous has a component of what attracted you to that person, and that's why jealousy is the shadow of love. I intend my work to confront human anxieties," says Rapoport. "It's a form of fun as well as a healing process".

This healing process is lightened alternately by commercial American caricatures of our "shadow" selves and motives, and Indonesian shadow puppets Rapoport reproduced on the

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Ylem Events

Creative Math Festival

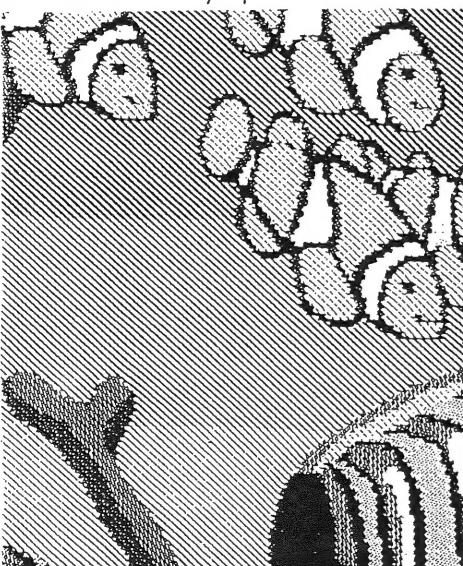
Saturday, April 11, 12-5 pm

Louden Nelson Community Center,
301 Center St., Santa Cruz

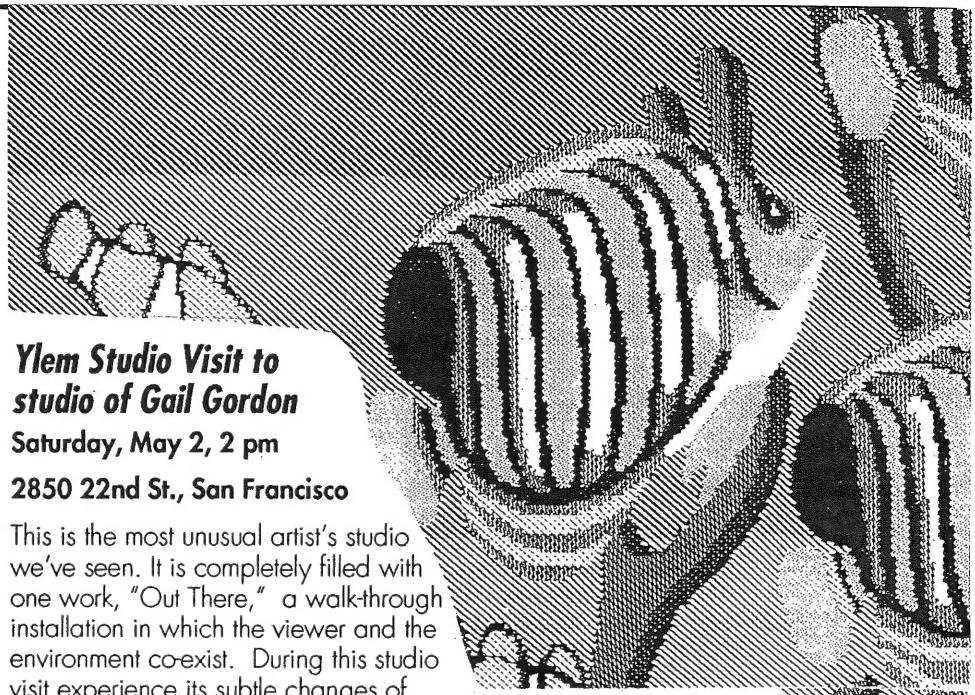
Featuring Dr Schaeffer and Mr. Stern in
Two Guys Dancing about Math,
2 and 4 pm. Performance prices: \$2,
\$3.

Plus: Math Art Exhibit hosted by Ylem;
art and math videos and talks; a roomful
of puzzles; education companies'
showcase; wandering performances by
Scott Kim; and other hands-on activities
for kids of all ages. Free!

If you would like to contribute your skills
and services, you may call El DeKoven,
415-857-1757 by April 5.



Detail of fabric design by Sheila O'Hara woven on computer Jacquard loom. (See Ylem Forum).



Ylem Studio Visit to studio of Gail Gordon

Saturday, May 2, 2 pm

2850 22nd St., San Francisco

This is the most unusual artist's studio
we've seen. It is completely filled with
one work, "Out There," a walk-through
installation in which the viewer and the
environment co-exist. During this studio
visit experience its subtle changes of
ephemeral light and color.

Space is limited. For reservations, call
Trudy, 415-856-9593. Leave your
phone number and your address as
well, so she can send you
directions. Those unable to come at this
time can make an appointment by
calling Gail Gordon after April 30:
415-826-2108.



Ylem Forum: Fantasy

Wednesday, May 6, 8 pm

McBean Theatre, The Exploratorium,
3601 Lyon St., San Francisco

Sheila O'Hara: "Undersea Fantasies."
O'Hara is a weaver of humorous
pictorial fantasies. She had an
opportunity last year to work in
Germany on a computerized Jacquard
loom. (See illustration).

Trudy Myrrh Reagan: "Soul-Tech." Myrrh
will show slides of Ylem artists' works in
which human, poetic visions are made
beautifully manifest by technological
media.

Craig Harris: "Configuring Hospitable
Spaces." Harris is Executive Director of
the journal, *Leonardo*. His other
vocation is envisioning the work
environment of tomorrow.

Peter King: "Fractal Video Feedback."
You've never seen TV sets do this! A live
demonstration.

Barbara Myman: "The Journey Home."
Myman shows her visionary collages.

NASA Video, "Astrosmiles." Astronauts
horsing around in zero-gravity.

Future Forums: July 1, "3-D," September 2,
"Interactivity," November 4, (TBA).

Squeeks, continued

computer screen. "In doing these
interactive pieces I bring in another
culture and acquaint us with it," says
Rapoport. "It's also a diversion from the
seriousness of the topic under
discussion." *The Shadow of Love* offers
further diversion by interspersing
illustrations of possible answers with
commentary by Berkeley psychologist
Ayala Pines and clips from soap opera
situations of sexual jealousy. Rapoport
spent one year taping. *The Shadow of
Love* eventually brings the participant
from the computer to one of 30 possible

huge suspended mylar puppets
representing their particular shadow.

Jealousy: the Shadow of Love, and the
work of Rinaldo, Reiser and the
following artists will be exhibited in
Convergence: Interactive Arts Festival '92,
curated by Rinaldo and Amy Youngs:
Mark Grossman, David Gaw, Brian
Goggins, Otto Lynd, David Quick and
Jim Merz. It will be on display June 11th
through July 18th at the Jameson-Shapiro
Gallery in San Francisco.

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Magazine.

YLEM

CALNDAR

Events

April 1, 7 pm

Peter Max (Washington, DC)

Slide show and video montage about his career, which included the animation for the *Yellow Submarine* movie by the Beatles. Course Code 491-212. \$11. Carmichael Auditorium, American History Bldg., Smithsonian, Washington, DC; 202-357-2700

April 1, noon

St. Stupid's Day Parade

Folks in weird costumes will parade through the financial district. At the Bank of America Headquarters they will toss pennies at its black granite sculpture, commonly called "The Banker's Heart." Meet at: Vaillancourt Fountain, Embarcadero Plaza, across from the Ferry Building, San Francisco

April 4, 3 pm

The Archaeology of Intention

Lecture by artist Bernie Lubell about his exhibit of the same name (see Exhibits). San Francisco Arts Commission Gallery, 155 Grove St., San Francisco, CA 94102; 415-554-9682

April 8, 7:30 pm

Paper Tiger Television

Lecture by Dee Dee Halleck, who helped start Paper Tiger Television in 1981. Paper Tiger cable programs open with: "It's 8:30 pm. Do you know where your brains are?" and go on to critique the communications industry. Deep-Dish TV, the first national public-access satellite, is its spin-off. \$5. Lecture Hall, San Francisco Art Institute, 800 Chestnut, San Francisco, CA 94133; 415-749-4588

April 11, 12-5 pm

Creative Math Festival

Details on page 3.

April 12-15

How Design Conference (San Diego)

F&W Publications conference on desktop publishing. How Design Conference, 1507 Dana Ave., Cincinnati, OH 45207; 800-666-0963; 513-531-2222

April 12-14

Silicon Graphics Expo

An international exhibition for Silicon Graphics customers, developers and resellers. Tutorials center on programming for graphics. \$300-350. But \$35 ticket for the exhibits only will show you new products for Iris Graphics

workstations. Held at Santa Clara Convention Center. Registration: Silicon Graphics Expo, 12343 Hymeadow Drive, Bldg. 3, Austin, TX 78750; 800-727-EXPO; fax 512-331-3950

April 30 - May 3

Hyperculture: Virtual Presence in Complex Systems (Caerleon, Wales, UK)

Conference at a college that specializes in international networked art events. Info: Sheila Hill, Faculty of Art and Design, Gwent College of Higher Education, Caerleon NP6 1XJ, Wales; tel. 44-0-467-20584; fax 44-0-467-25181

May 2, 2 pm

Gail Gordon Studio Visit (Ylem event)

Details on page 3.

May 3-7

CHI '92 (Monterey, CA)

Computer-Human Interface (CHI) is a special interest group (SIG) of Association of Computing Machinery (ACM). Conference in Northern California will emphasize interactivity, with an art exhibit full of bells and whistles. Much smaller than ACM-SIGGRAPH, it has the reputation of being arty and fun. Ylem's get-together there will be on Thursday 10:30-12 noon. Fee: \$300? Note: Ask about new Amtrak train to Monterey, connecting with Caltrain. Info: L. Borman, 1865 Tanglewood Dr., Glenview, IL 60025; 312-998-6476; borman.chi@xerox.com

May 6, 8 pm

Ylem Forum: Fantasy

Details on page 3.

Ongoing

Invisible Sites

Billed as a play, it is really an enthralling 60-foot-tall 3-D show with live actors and computer graphics. Ylem members Roger Mulkey and Scott Kim helped. \$10, \$15, \$25. George Coates Performance Works, 110 McAllister, San Francisco, CA 94102; 415-863-4130

Weekends in April, 2 pm

Tracing Time

Film series about imagery of space, time and motion. 4/18, *Man with a Movie Camera* (Russian, 1929); 4/19, *Cheaper by the Dozen* (1950); 4/26, *Visualizing Motion: Muybridge, Marey and Lumiere* (experiments predating movies); McBean Theatre, The Exploratorium, 3601 Lyon St., San Francisco; 415-563-7337

All events and exhibits are in San Francisco Bay Area except where noted. /

Exhibits

April 2-June 29

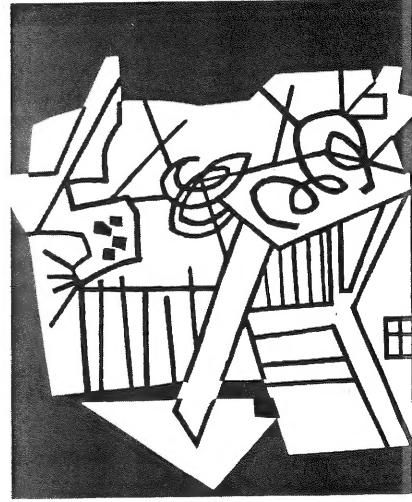
Best of the Best (Portland, OR)

A selection of Northwest computer art from the 1992 Mt. Hood Festival of Computer Art. Note: access to classrooms is limited. University of Oregon Continuation Ctr., 720 SW 2nd St., Portland, OR; 503-725-3055

Through April 4

Northern Lights Festival

Arts festival to celebrate the coming of Daylight Savings Time. Includes outdoor installation by Ylem member Banjit Bhattacharjee. For location, contact: Northern Liberties Neighborhood Assn., 733 N. 2nd St., Philadelphia, PA 19123; 215-627-6562



"Deuce," 1951-4,
painting by Stuart
Davis (collection
of San Francisco
Museum of
Modern Art)

Through April 12

Passages de l'Image

"Transitions of the Image." Organized by Centre Georges Pompidou, this multimedia exhibit features 14 artists from five countries. Much provocative time-based art: plan to stay awhile. San Francisco Museum of Modern Art, 401 Van Ness Ave., San Francisco, CA 94102; 415-252-4000

April 14-May 31

Tracing Time

Interactive exhibits: Eadweard Muybridge's work is shown on videodisk; *Moving Images* by Toshio Iwai uses computing to create 3-D illusions; Animated Sculpture by Michael Rudnick uses strobe light; *Water Waves* by Andrej Zdravic is a multi-TV installation. McBean Theatre, The Exploratorium, 3601 Lyon St., San Francisco; 415-563-7337

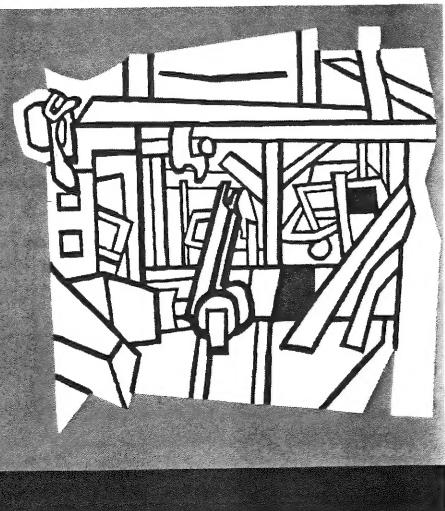
Through April 15
Etiquette of the Underclass
(Washington, DC)

In this interactive exhibit, people are given Walkmans playing dialog. Instructions are given where to go and what to do among the park benches and other installations. In this way, participants reenact a day in the life of the homeless. **Smithsonian Institution, The Mall, Washington, DC**

Through April 18
Computer Art from the Western States
(Brigham City, UT)

Juried by Larry Shaw of the Exploratorium. Fifty-five works represent artists in 11 states, including Ylem members Russell Reagan and Diane Fenster. **Brigham City Museum and Gallery, 24 N. 300 West, Brigham City, UT 84302**

Stuart Davis



Through June 7
Stuart Davis, American Painter
Early in this century, Stuart Davis painted what was wacky and brash in American pop culture with vigor and refinement. His paintings still seem fresh today. **San Francisco Museum of Modern Art, 401 Van Ness Ave., San Francisco, CA 94102; 415-252-4000**

Through June 19
The Archaeology of Intention
An ersatz dig where a stone age digital computer is being uncovered. Visitors are encouraged to play with the ropes and pulleys that result in actions distant to them. **Outdoors beside the San Francisco Arts Commission Gallery at 155 Grove St., San Francisco, CA 94102; 415-554-9682**

Through June 30

Science in Depth
Fascinating new 3-D technology is shown by 40 large full-color PHSCograms. Pioneered by Ylem member Ellen Sandor and colleagues at (Art)ⁿ, 312-805-4810. **Visitor Center Gallery, NASA-Ames Lab, Moffett Field, CA; call for hours: 425-604-6449**

Opportunities

Deadline April 1
TISEA Papers and Performance, Workshop & Panel Proposals

Immediate response required! The Third International Symposium on Electronic Art (TISEA) will be held November 9-13 of this year in Australia, where interest in computers and networks to the rest of the world is very high. Themes: *Art and the Algorithm*, and *Whither Cultural Diversity in the Global Village?* By fax or e-mail you can both request an entry form and get your proposal to them quickly (must be received by due date!) **TISEA, PO Box A307, Sydney South, NSW 2000, Australia; tel. 61-2-360-5607; fax 61-2-360-2943; anat@peg.pegasus**

Deadline April 1
National Educational Media Market

Film and video festival, Oakland, CA. Annual showcase of independent documentaries and educational media for non-theatrical distributors. Films, videos, interactive videodiscs; works in progress are welcome. \$20-55 entry fee. **National Educational Media Market, 655 Thirteenth St., Oakland, CA 94612; (510) 465-6885; fax 510-465-2835**

Deadline April 15
Frog Hollow: The Exemption Rather than the Rule

Open to U.S. artists. Work by artists "who stretch their medium beyond the ordinary." Show Sept. 11-Oct. 25. \$10/up to 6 slides. Cash award. **Vermont State Craft Center at Frog Hollow, Middlebury, VT 05753. 802-388-3177**

Deadline April 15
The Exquisite Fax
This collaborative fax project, currently involving 225 artist from 37 states and 6 countries, will continue until all 330 slots on a 15 X 22" grid are filled. This is a hi-tech update of the *exquisite corpse* drawings (collaborative drawings invented by the surrealists). Each artist will compose his/her image seeing only the pieces that border to the left and above. Possible catalog. **The Exquisite Fax, Craig Ede, 245 Snelling Ave. S. #2, St. Paul, MN 55105; fax 612-690-0172**

Deadline April 15
New York City Experimental Video and Film Festival

This festival seeks to unify video and film. Awards of \$200 to ten finalists. Formats: VHS or Beta. Fee: \$15. Categories: experimental film, video art, hybrid work. **NYC Experimental Video and Film Festival, 178 Union St. 4L, Brooklyn, NY 11231; 718-858-3140**

Deadline April 17
Earth, Air, Fire, and Water: The Elements

Open to all. "All media and formats, including outdoor sculpture and installations." Theme: work with content addressing "the alchemy of the creative process." Show May 1-31. **Middle Street Gallery, P.O. Box 341, Washington, VA 22747; 703-675-3440**

Deadline April 22
SIGGRAPH '92 Film, Video Entries Due

All standard video formats accepted, and 35mm films. You only need to send one entry for both/either the art show and/or the Electronic Theatre. State which you are entering, or both. Unusual computer graphics sought; also, multi-disciplinary or multi-cultural emphasis. Slide sets of both the Electronic Theatre and the art show will be produced, as well as a color catalog. Preliminary versions may be entered. Info: Sylvie Rueff, SIGGRAPH '92 Electronic Theatre Chair, 818-796-6601. Entries to: **Jackie White, SIGGRAPH '92 Electronic Theatre Administrator, Art Dept., California State Univ. at Los Angeles, 5151 State University Dr., Los Angeles, CA 90032; 213-343-4029; fax 213-343-4045; et92@siggraph.org**

Deadline April 22
SIGGRAPH '92 HDTV Entries Due

Final versions due for high definition television for projection and monitor display. Special emphasis this year on HDTV, exploring what it holds for the entertainment industry and the computer graphics community. For info, special assistance, and to make proposals: Gray Lorig, SIGGRAPH '92 HDTV Events Chair, Wunsch Auction Systems, Inc., 1332 Malvern Ave., Pittsburgh, PA 15217; 412-681-2076; lorig@siggraph.org. Send entries to: **SIGGRAPH '92, Jackie White, Art Dept., California State Univ. at Los Angeles, 5151 State University Dr., Los Angeles, CA 90032; 213-343-4045; et92@siggraph.org**

Deadline April 4
L.A.C.E. Artist Project Grants

Open to artists in southern CA and HI. All media except crafts. A total of \$32,000 is to be awarded for 6-8 projects. **Los Angeles Contemporary Exhibitions, 1804 Industrial St., Los Angeles, CA 90021; 213-624-5650**

Deadline May 15

Identidad National/National Identity

Your identity is a reflection of yourself. In this show, your entries will represent your culture and form part of the world's identity. Send 8 1/2" X 11" originals or photocopies, with your name and address on the back of each. All entries shown. No entry fee. No returns. Catalog, mail list to all. Ylem member Laúra Elenes is organizing this. Send to: **Encuentro Mundial de Culturas, A.C., Apdo Postal 21-267 Coyoacán, C.P. 04021 Mexico, D.F., Mexico**

Deadline June 15

Call for Papers and Projects

The Second International Conference of Fine Artists (COMAP) to be held August 3-5 at Seven Hills Conference Center, SFSU, San Francisco, needs Ylem members' input to be a success. Conference themes: Artistic Identity, Art & Technology (panel with E. Kent & L. Shaw), Public Art, Multi-Cultural Arts, Markets for Artists, Artists in the 21st Century, Art & Ecology, Art & Peace. You are invited to speak, show slides of your work, demonstrate your skill or technology, or get involved in other special projects we or you propose. June 15 is deadline to register to attend, July 1, deadline for papers. Prices are low because this is by and for artists: \$60, sessions + lunch; \$250, sessions + meals + lodging; (\$300, same, but for non-artists). **Artists Equity Institute, PO Box 460931, San Francisco, CA 94146; Ylem participation info: Eleanor Kent, 415-647-8503; ekent@well.sf.ca.us**

FISEA '93

Next year, the Fourth International Symposium on Electronic Art (FISEA) will be in Minneapolis November 5-7, 1993. Those wishing early input on this event should contact the person coordinating it: **Roman Verostko, MPLS College of Art and Design, 5535 Clinton Ave. S., Minneapolis, MN 55419; home tel. and fax: 1-612-822-3800; work: 1-612-874-3737; work fax: 1-612-874-3704**

Artistic Musical Scores Sought

Clifford Pickover writes: "I'm looking to get some interesting-looking musical scores to help illustrate a book I'm writing, a chapter of which deals with the encoding of genetic and other sequences as musical scores, weird musical scores in history, etc." Contributors of all scores used in book will receive credit. Send artistic scores (even if musically uninteresting) to: **Clifford Pickover, IBM Watson Research Center, Yorktown Heights, NY 10598**

Ylem Color Art Sought

In case we have a chance to do a color cover to the *Newsletter* again, we need some art on disk to choose from! You may send files in any Macintosh format that can be opened in Photoshop with or without Disk Doubler. Also, hardcopy, good photos or reproductions. **Ylem Newsletter, 967 Moreno, Palo Alto, CA 94303; 415-856-9593**

Needs & Offerings

Help Review Software, Hardware

Leonardo Newsletter and Electronic News will soon offer product evaluations. Send maximum of two pages for newsletter, less for e-mail publication. List contact names and addresses. Please, no advertising. **Leonardo, 2030 Addison #300, Berkeley, CA 94704; 510-845-8298; fax 510-841-6311; fast@garnet.berkeley.edu**

Holart Report: First issue May '92

Ylem member Gary Zellerbach, former owner of Holos Gallery in San Francisco, has started a quarterly publication to track the market in fine art holograms. It will demonstrate that there is a functioning system that buys and sells holographic art—art that commands fair and reasonable prices in line with those paid for other types of fine art. This, in the absence of other benchmarks like auction prices for determining them. The publication serves as a clearinghouse for private and gallery sales information. It will perform a valuable service to holographers by informing value-conscious collectors and museum curators. Holographers, you do not need to subscribe to submit information on pieces sold, but become a charter subscriber to see how this works! Holographers' special rates: \$15 domestic, \$25 foreign. **Holart Report, 18 Bonview St., San Francisco, CA 94110; 415-282-3646; fax 415-282-4013**

Virtual Reality Papers to Circulate

When Ylem visited the Virtual Reality Labs at NASA-Ames Research earlier this year, the group was given several professional papers to circulate among its members. For titles and to be put on circulation list, contact: **Nancy Frank, Frank Relations, 1342 Stevenson, San Francisco, CA 94103; 415-626-5742**

ACECAT: Low-end Digitizing Tablet

ACECAT is a low-cost tablet with a 5 X 5" active area. Replaces the mouse on a personal computer and works better for drawing. Point, click and draw with a stylus wired to the tablet. Pad can be held away from the desk. It has absolute positioning, which means a touch

point on the pad corresponds to a similar one on the screen. \$129. Larger sizes available. DOS-compatible; Mac ACECATs available soon. From: **ACECAD Digitizers, PO Box 431, Monterey, CA 93942; 1-800-676-4ACE; 408-655-1900; fax 408-655-1919**

Dave Archer Print—Pre-Publication Offer

Fire and Ice (image size, 16 X 26") is a signed limited-edition offset print of one of Dave Archer's cosmic paintings on glass. Pre-publication price \$195 before 12/31/92 (\$375 thereafter) + shipping. CA residents add 7.25% tax. **Dave Archer Studios, PO Box 150180, San Rafael, CA 94915; 800-457-2196**

April 30

VOX Art Magazine

Published by a non-profit in San Francisco, this magazine likes daring, issue-based art. The current issue treats artists who explore the edges and take risks, for instance on the subject of sexuality. Upcoming issues will treat healing and spiritual intention in art. Quarterly, Before April 30, \$12.50 per year. **VOX, 142 Fillmore St., San Francisco, CA 94117**

Topography Data for Home Computers

Data useful for art? The National Geophysical Data Center is offering a topography data base for 48 coterminous states of the U.S. and software for accessing the data. IBM-PC compatible, needs MS-DOS 2.0 or higher, hard drive, high density diskette drive. \$310, all 14 regions, \$50, one region, \$20 ea. addn. region. **National Geophysical Data Center, NOAA, Code E/GC1, 325 Broadway, Boulder, CO, 80303; 303-497-6764; fax 303-497-6513; info@ngdc1.colorado.edu**

Women in Film and Television

This international organization for film, video and TV professionals has a Northern California Chapter. Workshops, international women's film festival, annual retreat, group health insurance, and more. Info: **Northern California Women in Film and Television, PO Box 420068, San Francisco, CA 94142; 415-431-3886**

Computer Pictures

Free magazine on computer graphics to people in the field. Send for application. **Computer Pictures, Reader Service Mgmt. Dept., PO Box 16926, North Hollywood, CA 91615**

Some calendar items reprinted from Art Calendar (PO Box 1040, Great Falls, VA 22066, Subscr. \$32/yr.), Rough Draft (from San Francisco Cacaphony Society), Video Networks (from Bay Area Video Coalition), Leonardo Newsletter.



Barnard 33 in Orion

Barnard 33 in Orion is an elusive and diffuse space formation, also known by its nickname as the horsehead Nebula. It is a dark interstellar cloud of gas and dust. Dark nebulae are actually invisible. Instead of emitting or reflecting light, they obscure it from the stars that shine behind them. Nebulae are either the birth place or the cemetery of stars. Being a diffuse nebula, Barnard 33 is a stellar nursery. The Great Nebula in Orion is light years away from our solar system. The most striking star cluster in Orion is the Theta Orionis or Trapezium. Its hot, bluish-white stars illuminate the dark nebular material in their vicinity.

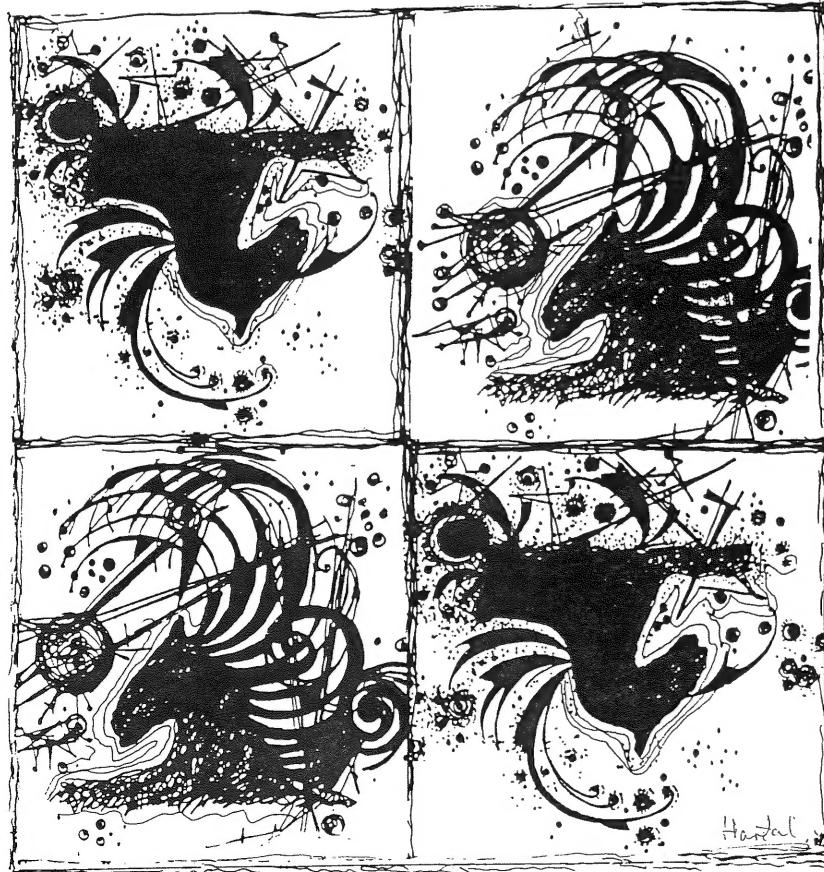
Inspired by Barnard 33 in Orion, this image of the Horsehead Nebula is based on my oil painting as its modular unit. The resulting picture is not a scientific rendition but a poetic idea of the universe. The symmetrical organization of the work reminds the

viewer that harmony, reflection, balance, automorphic transformations and regressing patterns are ubiquitous properties of both art and nature. The mathematical principles of symmetry seem to underlie the aesthetic organization of the world as a unified whole.

It is also should be borne in mind that scientific imagery is never the thing in itself but a metaphor. A map, therefore, is an abstraction, a two-dimensional representation of the three-dimensional world. While the latter is made of all sorts of material, the map is made only of paper. Also, map makers distort the world by homogenizing and changing its colors, simplifying its features as well as reducing its scale. Thus, the notion that science is entirely objective whereas art is thoroughly subjective is nothing but a myth. In fact science is a combination of discovery and invention, of

occurrence and imagination. Its glory—like that of art—lies not in the process of researching the facts, but in the act of creation.

In its attempt to obtain objective knowledge science ignores the subjective side of human existence. Yet ignoring the subjective does not make the world more objective. It merely enhances the extent of distortion. Striving for the quantification of reality, science applies mathematics. However, logarithmic tables or trigonometric equations are no closer to reality than Picasso's *Guernica*, or Beethoven's *Eroica*. While two halves of a apple make a whole, half of a car and half of a horse would hardly combine into a functional vehicle. With the words of Albert Einstein : "As far as the laws of mathematics refer to nature they are uncertain, and as far as they are certain they do not refer to nature."



Barnard 33 in Orion: The Horsehead Nebula, drawing by Paul Hartal, based on his painting shown in *Ylem 1991-2 Directory*.

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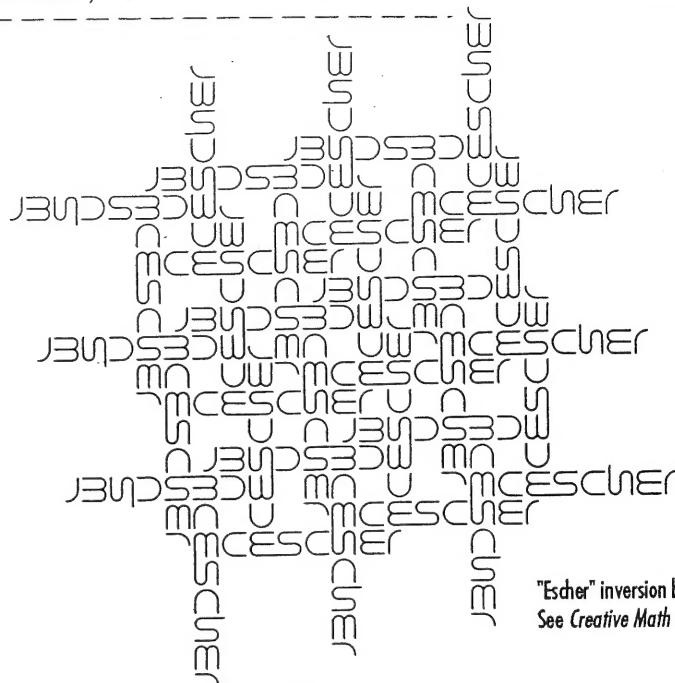
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"Escher" inversion by Scott Kim.
See Creative Math Festival, p. 3

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